ABSTRACT OF THE DISCLOSURE

The present invention is a method and apparatus for using ring resonators to produce narrow linewidth hybrid semiconductor lasers. According to one embodiment of the present invention, the narrow linewidths are produced by combining the semiconductor gain chip with a narrow pass band external feedback element. The semi conductor laser is produced using a ring resonator which, combined with a Bragg grating, acts as the external feedback element. According to another embodiment of the present invention, the proposed integrated optics ring resonator is based on plasma enhanced chemical vapor deposition (PECVD) SiO_2/SiON/SiO_2 waveguide technology.